

REMARKS

In the Final Office Action, the Examiner noted that claims 9-14 are pending in the application and that claims 9-12 stand rejected. The Examiner further noted that claims 13 and 14 are objected to. By this response, claims 9, 11 and 12 are amended to more clearly define the invention of the Applicant.

In view of the amendments presented above and the following discussion, the Applicant respectfully submits that none of the claims now presently in the application are anticipated under the provisions of 35 U.S.C. § 102 or rendered obvious under the provisions of 35 U.S.C. § 103. Furthermore, the Applicant also submits that all of these claims now satisfy the requirements of 35 U.S.C. §112. Thus, the Applicant believes that all of these claims are now in allowable form.

Rejections

A. 35 U.S.C. § 112

The Examiner rejected the Applicant's claim 12 under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. More specifically, the Examiner stated that claim 12 recites the limitation "position of the second coloured wheel relative to the first coloured wheel" and that there is insufficient antecedent basis for the limitation.

In response, the Applicant has herein amended claim 12 to depend from claim 11 instead of claim 9. Having done so, the Applicant respectfully submits that the basis for the Examiner's rejection of claim 12 has been removed. Therefore, the Applicant respectfully requests that the Examiner's rejection under 35 U.S.C. 112 be withdrawn.

B. 35 U.S.C. § 102

The Examiner rejected the Applicant's claims 9-10 under 35 U.S.C. § 102(e) as being anticipated by Morgan (US Patent No. 6,567,134). The rejection is respectfully traversed.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (*Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d

1452, 221 USPQ 481, 485 (Fed. Cir. 1983)) (emphasis added). The Applicant respectfully submits that Morgan absolutely fails to teach each and every element of at least the Applicant's independent claims and in particular the Applicant's amended, independent claim 9.

More specifically, the Applicant's amended, independent claim 9, with reference numbers added for clarity, specifically recites:

9. Display device comprising:

means of periodic generation of successive coloured beams (8) taking successively at each period a plurality of determined primary colours (α_Φ ; β_Φ ; γ_Φ); and

means of modulation of each of said coloured beams for generating during a determined duration (T1, T2, T3) an image to be displayed in each of said determined primary colours (α_Φ ; β_Φ ; γ_Φ),

wherein each of said determined primary colours (α_Φ ; β_Φ ; γ_Φ) is obtained as a result of at least two distinct colours (Fig.4, when $\Phi = \Phi_1 : G$ and Y; R and M; B and C) taken successively by the colour beam (8) during the determined duration (T1; T2; T3) of modulation of this colour beam (8) for generating an image in this primary colour.

The Applicant submits that in the invention of the Applicant, the means of periodic generation of successive coloured beams comprises a first coloured wheel (12) and a second coloured wheel (14) successively traversed by a luminous beam (6). As described in the Applicant's Specification, in the invention of the Applicant each coloured wheel (12, 14) carries a plurality of coloured filtering sectors (Y, C, M). The position (i.e. "phase shift" Φ) of the second coloured wheel (14) relative to the first coloured wheel (12) determines the different primary colours (α_Φ , β_Φ , γ_Φ). The means of modulation taught and claimed by the Applicant modulates each of the coloured beams in order to generate, during a determined duration (here, three successive thirds of a "period" : T1, T2, T3) an image to be displayed in each of the determined primary colours (See Specification, page 7, lines 2-4: "The imager 16 therefore modulates the coloured beam 8 according to a fixed image over each third of a period T1, T2, T3" – see also page 7, lines 17-20: "Figure 5 thus represents the primary colours α_Φ , β_Φ , γ_Φ of the projector, that is to say the colours of the coloured beam 8 over each third of a period T1, T2, T3 during which the imager generates a fixed image").

In a case in which the phase shift is equal to Φ_1 , the different successive primary colours are α_{Φ_1} , β_{Φ_1} and γ_{Φ_1} . In addition, consider the case in which the three successive "determined durations of modulation", i.e. the three thirds of a "period" are T1, then T2, then T3. In an embodiment of the Applicant's invention, the results of such conditions are as follows:

- 1) During the 1st "determined duration of modulation" T1, the first determined primary colour (α_{Φ_1}) is obtained as a result of two distinct colours (page 6, lines 19-24 + Fig.4: **G** and **Y**) taken successively by the colour beam (8) during this determined duration T1 (equal to 1/3 of a period) of modulation of this colour beam (8) for generating an image in this primary colour (α_{Φ_1}).
- 2) During the 2nd "determined duration of modulation" T2, the second determined primary colour (β_{Φ_1}) is obtained as a result of two distinct colours (page 6, lines 19-24 + Fig.4: **R** and **M**) taken successively by the colour beam (8) during the determined duration T2 (equal to 1/3 of a period) of modulation of this colour beam (8) for generating an image in this primary colour (β_{Φ_1}).
- 3) During the 3rd "determined duration of modulation" T3, the third determined primary colour (γ_{Φ_1}) is obtained as a result of two distinct colours (page 6, lines 19-24 + Fig.4: **B** and **C**) taken successively by the colour beam (8) during the determined duration T3 (equal to 1/3 of a period) of modulation of this colour beam (8) for generating an image in this primary colour (γ_{Φ_1}).

The Applicant submits that Morgan absolutely fails to teach or suggest the Applicant's invention as claimed and at least as described above. More specifically, the Applicant submits that Morgan teaches a display device including a means of periodic generation of successive coloured beams taking successively at each period a plurality of determined primary colours. The Examiner refers to figure 7 of Morgan, which shows a color wheel having six different color filter segments, R, Y, G, C, B and M, with six spokes in between. One skilled in the art understands that:

- The first determined primary colour (Red) is obtained as a result of only one color taken by the colour beam during a first determined duration while the white light spot 210 traverses the R filter segment,
- The second determined primary colour (Yellow) is obtained as a result of three distinct colours taken successively by the colour beam during a second determined duration while the white light spot 210 traverses the R-Y spoke, the Y filter segment, and the Y-G spoke,
- The third determined primary colour (Green) is obtained as a result of only one color taken by the colour beam during a third determined duration while the white light spot 210 traverses the G filter segment,
- The fourth determined primary colour (Cyan) is obtained as a result of three distinct colours taken successively by the colour beam during a fourth determined duration while the white light spot 210 traverses the G-C spoke, the C filter segment, and the C-B spoke,
- The fifth determined primary colour (Blue) is obtained as a result of only one color taken by the colour beam during a fifth determined duration while the white light spot 210 traverses the B filter segment, and
- The sixth determined primary colour (Magenta) is obtained as a result of three distinct colours taken successively by the colour beam during a sixth determined duration while the white light spot 210 traverses the B-M spoke, the M filter segment, and the M-R spoke.

Therefore, the Applicant submits that Morgan does not disclose that each of the (first to sixth) determined primary colours is obtained as a result of at least two distinct colours taken successively by the colour beam during a determined duration as taught in the Applicant's Specification and as claimed by at least the Applicant's independent claim 9. That is, the display device of Morgan comprises a means of modulation of each of the coloured beams (See Morgan, bottom of column 10 and figure 6: 602, 614). However, the Applicant submits that there is no explicit evidence in Morgan that this modulation of each of the coloured beams actually generates, during a determined duration, an image to be displayed in each of the primary colours as taught in the Applicant's Specification and claimed by at least the Applicant's independent claim 9.

In addition and with regards to claim 10, the Applicant submits that Morgan does not teach or suggest that each of the coloured beams takes at least one of the distinct colours for a variable duration so as to vary the determined primary colour, because there is no variation of any primary colour as determined above (first to sixth). As a matter of fact, as far as the dimension of the different color filter segments of the color wheel (figure 7, for instance) is fixed, the successive determined primary colours cannot vary.

Therefore, the Applicant submits that for at least the reasons recited above, Morgan absolutely fails to teach, suggest or anticipate each and every element of the claimed invention, arranged as in at least the Applicant's amended, independent claim 9 as required for anticipation. Therefore, the Applicant submits that claim 9 is not anticipated by the teachings of Morgan, and as such, fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

Furthermore, dependent claim 10 depends directly from the Applicant's independent claim 9 and recites additional features therefor. As such and for at least the reasons recited above, the Applicant submits that dependent claim 10 is also not anticipated by the teachings of Morgan. Therefore the Applicant submits that dependent claim 10 also fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

C. 35 U.S.C. § 103

The Examiner rejected the Applicant's claims 11-12 under 35 U.S.C. § 103(a) as being unpatentable over Morgan in view of Ouchi (US Patent No. 6,753,829). The rejection is respectfully traversed.

The Examiner applied Morgan to claims 11 and 12 as applied above for the rejection of the Applicant's claim 9. As recited above, the Applicant submits that Morgan absolutely fails to teach or suggest the Applicant's claim 9. As such and for at least the reasons recited above, the Applicant further submits that Morgan absolutely fails to teach, suggest or render obvious the Applicant's claim 10 and 11 which depend from the Applicant's claim 9 and recite further technical features thereof. The Applicant further submits that Morgan fails to teach, suggest or

render obvious that the means of periodic generation of successive coloured beams comprises a first coloured wheel and a second coloured wheel successively traversed by a luminous beam (as the white light spot 210) as claimed by the Applicant's claim 10, at least because there is only one coloured wheel in the display device of Morgan.

The Applicant further submits that the teachings of Ouchi absolutely fail to bridge the substantial gap between the teachings of Morgan and the invention of the Applicant. That is, the Applicant submits that Ouchi teaches a first coloured wheel ("color filter plate" 3, figure 1) and a second coloured wheel ("color filter plate" 4, figure 1) successively traversed by a luminous beam (coming from the "white light source" 2) and being driven in rotation (column 7, lines 44-46).

Ouchi does not disclose that each coloured wheel carries a plurality of coloured filtering sectors : if, according to column 7, lines 48-61, the first coloured wheel 3 carries indeed three coloured filtering sectors 3R, 3G, 3B, according to column 8, lines 1-8, the second coloured wheel 4 carries only one coloured filtering sector 4R, as the second sector 4BG is NOT coloured : "Note that ... 4BG transmits white light without any change". Moreover, Ouchi does not disclose that both coloured wheels are driven in rotation with an angular speed that is substantially identical as taught and claimed by the Applicant's amended claim 11.

Therefore, the Applicant submits that for at least the reasons recited above, Morgan and Ouchi, alone or in any allowable combination, absolutely fail to teach, suggest or render obvious each and every element of the claimed invention, arranged as in at least the Applicant's claims 10 and 11. Therefore, the Applicant submits that claims 10 and 11 are not rendered obvious by the teachings of Morgan and Ouchi, alone or in any allowable combination, and as such, fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

Conclusion

The Applicant would like to thank the Examiner for pointing allowable subject matter, however the Applicant submits that all claims now pending in the above identified Patent Application are now in allowable form. The Applicant

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would also like to apologize to the Examiner for the mix-up in the Response to the previous Office Action.

Thus, the Applicant submits that none of the claims, presently in the application, are anticipated under the provisions of 35 U.S.C. § 102 or rendered obvious under the provisions of 35 U.S.C. § 103. Furthermore, the Applicant also submits that all of these claims now satisfy the requirements of 35 U.S.C. §112. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion, it is respectfully requested that the Examiner telephone the undersigned.

No fee is believed due. However, if a fee is due, please charge the additional fee to Deposit Account No. 07-0832.

Respectfully submitted,
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